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F41C 3/14 9/08

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F3C CFC

(56) Documents Cited

GB 1429755 A GB 1241840 A US 5706598 A  
US 5642583 A US 5623779 A US 5446987 A  
US 4827650 A US 3783545 A

(58) Field of Search

UK CL (Edition P) F3C CFC CFE CFC CLC CLN  
INT CL<sup>6</sup> F41A 21/00 21/12, F41C 3/00 3/14 3/16 9/00  
9/08  
ONLINE: WPI

(54) Abstract Title

Firearm device

(57) A cylinder for a muzzle loading revolver which has been re-designed in a way to allow the use of modern ammunition components. i.e. smokeless powder 6, modern pistol primers 8, and modern hollow based wadcutter bullets 5.

The cylinder being bored with a step to determine the depth to which the bullet can be seated. This is required to avoid compression of the powder charge.

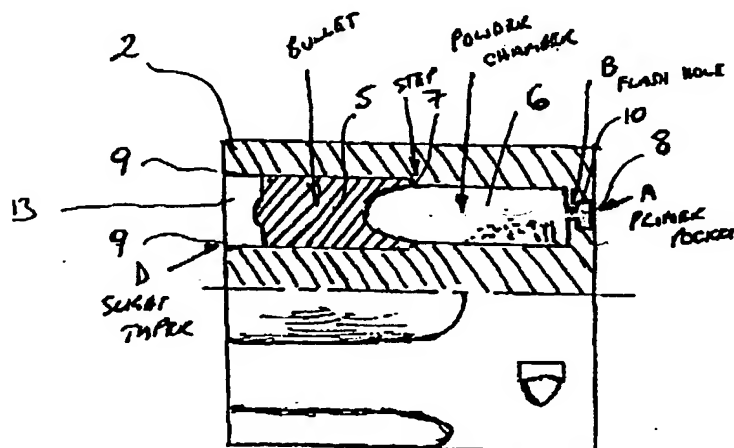


FIG 2

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SECTION THROUGH  
FRAME

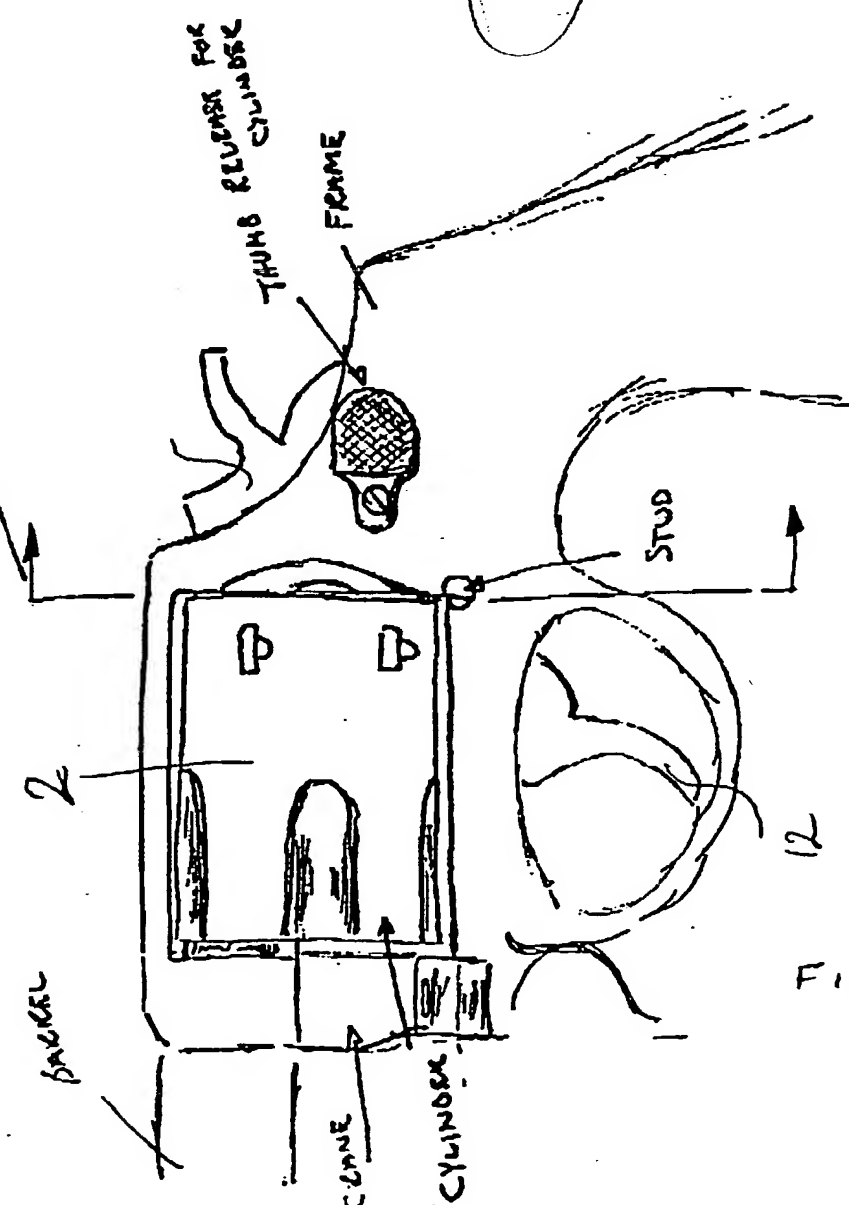
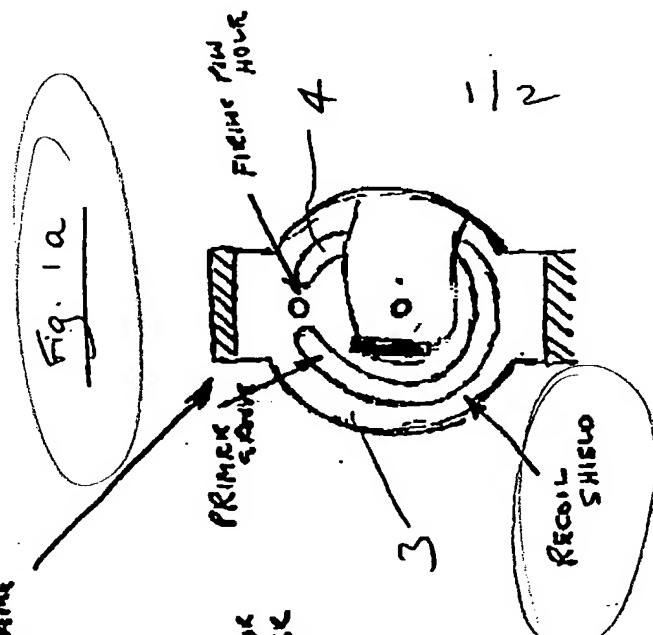


FIG 1

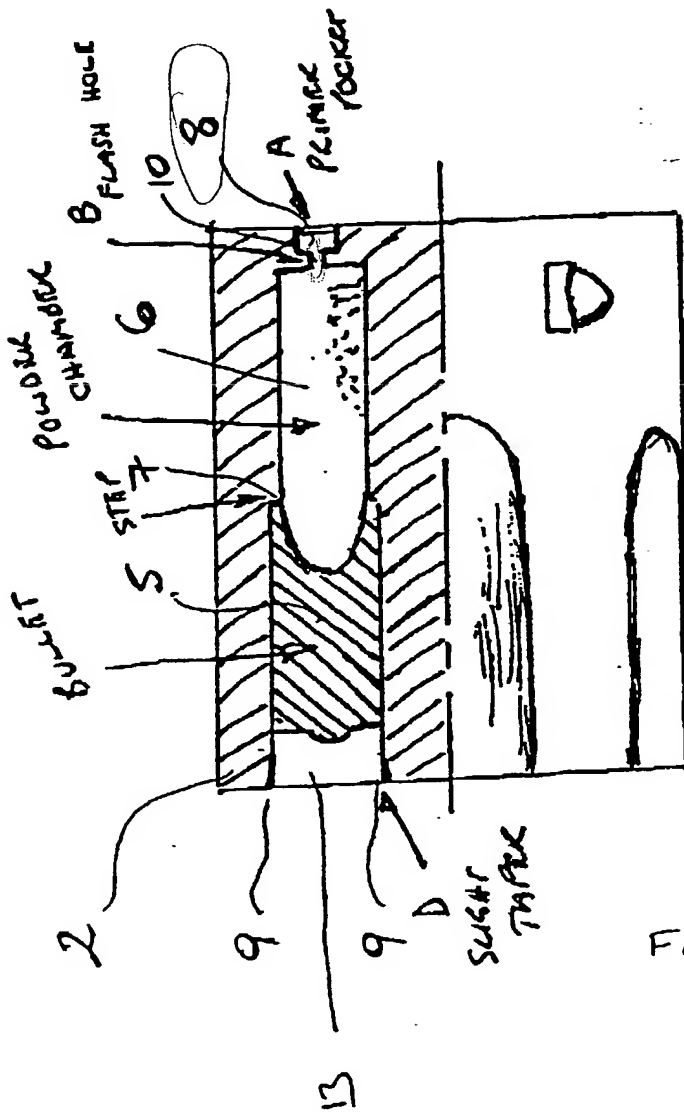


FIG 2

1     Firearm Device

2

3     The present invention relates to the cylinder of a  
4     revolver, in particular a double action muzzle loading  
5     revolver. This invention features a cylinder which  
6     includes all the components of a modern cartridge, save  
7     the removable cartridge case.

8

9     The method of firing muzzle-loaded firearms is well  
10    known. Within the cylinder, "black powder" is used as  
11    a propellant and percussion caps are used to ignite  
12    said black powder. The percussion cap is placed on a  
13    nipple which is screwed into the rear of each chamber.  
14    The cylinder commonly features five or six chambers  
15    which contain a small amount of said black powder which  
16    has been compacted by a slightly oversized lead ball.  
17    By pulling the trigger of the revolver the hammer  
18    releases, striking the percussion cap, which in turn  
19    detonates the powder, resulting in the lead ball being  
20    propelled down the barrel of the weapon.

21

22    There are many inherent disadvantages in the above  
23    system. For example, the black powder is explosive and  
24    volatile, and easily ignited by a stray spark or flame.  
25    The residue from black powder is corrosive,

1 necessitating a thorough cleaning of the firearm every  
2 time it is discharged. There is also a tendency for  
3 the percussion caps (whether spent or not) to fall off  
4 during recoil of the firearm, jamming the mechanism.  
5 The obnoxious smoke produced by the burned black powder  
6 also prevents the use of such weapons at indoor firing  
7 ranges. Unless grease or some similar material is  
8 applied on top of the ball in the loaded chamber,  
9 "flash over" can also occur wherein the flame of the  
10 ignited burning powder in one chamber can push past the  
11 ball to the powder below and detonate the neighbouring  
12 chamber. Most modern made reproduction revolvers are  
13 single action only, making them unsuitable for  
14 competition use. The present invention is designed to  
15 eliminate all of these problems.

16  
17 According to a first aspect of the invention there is  
18 provided a cylinder for a revolver comprising a  
19 plurality of elongate chambers, the chambers preferably  
20 being generally cylindrical.

21  
22 Preferably each chamber is adapted to allow insertion  
23 of a bullet at the forward end of said chamber.  
24 Preferably each chamber is flared at the forward end  
25 such that the diameter at the forward end is larger  
26 than the diameter distal from the forward end.

27  
28 Preferably each chamber is provided with retaining  
29 means for retaining a bullet, such that the bullet is  
30 spaced from the rear end of said chamber. Preferably  
31 the retaining means comprises a shoulder in the chamber  
32 wall. Preferably the shoulder is provided at an  
33 intermediate position in the chamber such that the  
34 forward portion of the chamber has a larger diameter  
35 than the rear portion of the chamber. Preferably the  
36 forward portion of the chamber has a diameter adapted

1 to hold a bullet in position by friction.

2

3 Preferably each chamber is associated with a primer  
4 pocket located in the rear face of the cylinder.

5

6 Preferably each chamber is connected by communicating  
7 means to its associated primer pocket. Preferably said  
8 communicating means is a cylindrical passage at the  
9 rear end of the chamber, whereby said passage has a  
10 diameter smaller than the diameter of the chamber.

11

12 According to the second aspect of the invention there  
13 is provided a muzzle loading revolver comprising a  
14 barrel, a frame, a crane and a cylinder according to  
15 the first aspect of the invention.

16

17 Preferably said cylinder is removable.

18

19 Preferably the revolver further comprises a recoil  
20 shield which in use abuts the rear face of the  
21 cylinder. Preferably said recoil shield has an arcuate  
22 groove in the abutting face in a position corresponding  
23 to the arcuate path traced by a primer pocket of said  
24 cylinder when said cylinder is rotated about its axis  
25 of rotation. Preferably the groove has a depth adapted  
26 to allow the free passage of primer placed in said  
27 primer pocket and projecting therefrom when said  
28 cylinder is rotated.

29

30 The cylinder of the present invention is bored out as  
31 if it had an integral cartridge contained within it.  
32 At the rear of each chamber is a primer pocket which  
33 allows the present invention to be used with a modern  
34 firearm primer. The primer pocket is connected to the  
35 chamber by means of a flash hole, while the front of  
36 the chamber is bored out to accept a modern smokeless

1 powder and a modern hollow-based wad cutter bullet. In  
2 order to prevent the bullet from being shaved while  
3 being loaded, the front end of each chamber is slightly  
4 tapered.

5  
6 The cylinder is spring-loaded and allows a very slight  
7 recoil action backwards, thereby preventing the primer  
8 from moving out of the primer pocket and jamming the  
9 cylinder. The only modification required to the  
10 firearm to accept the present invention is to provide  
11 an arcuate groove around the recoil shield of the  
12 weapon, thus allowing the cylinder to rotate, should  
13 the primer be slightly set back in the primer pocket of  
14 the invention.

15  
16 An embodiment of the invention will now be described,  
17 by way of example only, with reference to the  
18 accompanying drawings, wherein:

19  
20 Fig. 1 is a side elevation of the firearm;  
21 Fig. 1a is a through section of the recoil shield  
22 of the firearm;  
23 Fig. 2 is a partial section of the cylinder,  
24 according to the present invention.

25  
26 Figs 1 to 2 illustrate the cylinder of a double action  
27 muzzle loading revolver, where the cylinder is designed  
28 to contain all the components of a modern cartridge,  
29 save the removable cartridge case.

30  
31 The revolver 1 features a recoil shield 3 in which  
32 there is a radial groove 4. ~~Primers~~ (not shown) are  
33 placed in the primer pockets 8 of the removable  
34 cylinder 2. When the cylinder 2 is fitted onto the  
35 revolver 1, any protruding portions of the primers are  
36 enclosed by the groove 4, thus allowing cylinder 2 to

1 rotate while the primers occupy the primer pockets 8.

2

3 Within the removable cylinder 2 are six chambers 13.

4 Each of these chambers contains a primer pocket 8 which  
5 is connected to the chamber 13 via a flash hole 10.

6 Within each of the primer pockets 8 is fitted a primer.

7 When the trigger 12 of the revolver is pulled, the

8 hammer 11 is released and strikes the primer. The

9 primer then ignites the powder (not shown) within the

10 powder chamber 6. The powder is a modern smokeless

11 powder. Upon ignition, an expanding gas then propels

12 the "wad cutter" bullet 5 towards the target. When

13 fired, the cylinder 2 is preferably allowed to move

14 backward between 0 and 0.25mm to avoid the primer

15 moving out of the primer pocket 8 and jamming the

16 mechanism of the cylinder 2.

17

18 The chambers 13 of the cylinder 2 are machined to

19 feature a step 7 against which the rear of the bullet 5

20 rests when loaded into the chambers 13. The chambers

21 13 also feature a slight rearward taper 9 to prevent

22 "shaving" of the bullet 5 occurring during loading.

23

24 These and other modifications and improvements can be

25 incorporated without departing from the scope of the

26 invention.

27



What I claim is:

1. A firearm revolver cylinder machined in its external dimensions to be identical to the existing cylinder of any desired make of proprietary revolver firearm in all respects that relate to the mechanical function of the cylinder but with the chambers bored to accept a projectile, powder and cartridge primer directly into the cylinder in the desired relative dimensions rather than those relative dimensions being defined by means of a cartridge case.
2. A revolver cylinder as in claim 1 where each chamber is bored for a proportion of its length at one diameter and at a second smaller diameter to form a "step" on to which a projectile may be pressed to set a fixed repeatable depth. The smaller of the two diameters provides the combustion chamber for the propellant. The opposite end of each chamber to the projectile is bored to create a recess or "pocket" to accept a proprietary make of pistol cartridge primer. The dimensions for the primer recess and the required hole to provide access to the combustion chamber for the primer flame will of course be machined to the same dimensions as the cartridge case for which the proprietary primer is designed.
3. A cylinder as in claims 1 and 2 where a spring is provided to apply force pushing the cylinder towards the barrel of the revolver such that the cylinder may recoil against the said spring in reaction to the exit of a projectile from the cylinder. Said spring may be located on the shaft upon which the cylinder is rotatably mounted on the frame of the proprietary revolver.



Application No: GB 9719997.0  
Claims searched: 1 to 3

Examiner: Trevor Berry  
Date of search: 16 December 1998

**Patents Act 1977**  
**Search Report under Section 17**

**Databases searched:**

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK CI (Ed.P): F3C (CFD, CFE, CFQ, CLC, CLN)

Int CI (Ed.6): F41A 21/00, 21/12; F41C 3/00, 3/14, 3/16, 9/00, 9/08

Other: ONLINE: WPI

**Documents considered to be relevant:**

Category	Identity of document and relevant passage		Relevant to claims
X	GB 1429755	INDUSTRIE-WERKE	1, 2
X	GB 1241840	ALLIED RESEARCH	1-3
X	US 5446987	LEE-see figures 9 and 10	1
X	US 5706598	JOHNSTON	1, 2
X	US 5642583	BALL	1, 2
X	US 5623779	RAINEY	1, 2
X	US 4827650	LADRIERE	1, 2
X	US 3783545	SEFRIED	1

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.